THE VALUE OF THE SOIL SURVEY IN LAND-USE PLANNING

By

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The soil survey, as it has been made by the U. S. Bureau of Chemistry and Soils, supplies information of considerable value in land-use planning. Land-use planning demands the classification of land in categories which define the use-capabilities of the land. The soil survey of the past has supplied this information indirectly and in part.

Soil classification is not necessarily land classification. The two are not synonymous. It is quite possible to have poor soils on good land or good soils on poor land. It is always necessary to define the use to which land is to be put before it can be described as poor or good. For example, in a given area the soil may be fertile but the topography too rough to permit the use of it for tillage. If the rainfall is sufficient, the land may be excellent for timber but very poor for crops. Further, as in the case of some of the sandy soils of the Atlantic Seaboard, they may be inherently poor and unproductive, but because of their fine response to fertilizers and good management, and their nearness to market, they make excellent land for market-garden crops.

In general, the soil surveys of the past have failed to measure up to their possibilities as an instrument in land-use planning, because they have not adequately interpreted the soils in terms of their use-capabilities. Pedologically, they have in most cases been excellent, even masterpieces, but they have failed to meet with the popular approval they were entitled to. Why? First, because the soils were described in terms that were just a little too technical for the farmer, or the county agent or other leader, who had not devoted some time to their study. Second, differences in soil types were shown which had little or no agricultural significance. Most crop plants have a rather wide range of adaptability to textural and structural differences, reaction, organic matter,

* Read at meeting of Oklahoma National Emergency Coordinating Council, Oklahoma City - July 21, 1937.

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and other soil conditions. It is quite possible for a good soil technologist to recognize and map soil differences which are of no particular concern to the plant or the planter. Too often this is done in areas of low agricultural value where the dominant use of the land can only be for pasture or woodland. This point needs emphasis.

When John Doe looks at an average soil map, having 25 to 50 soil types on it, what happens? At first, he is surprised. He didn't have any idea there were so many kinds of soil in the county. Then he locates his own farm and finds, let us say, that it has on it Windthorst fine sandy loam, some Nimrod fine sandy loam and maybe one or two other types. But what do these unusual names mean? If he carefully studies the description of the soils he will find out, but too often he lays the report aside and waits for some more convenient time, which in many cases never comes.

If the writers of the older soil survey reports had gone one or two steps further, if they had placed the soil types in groups which indicated their use-capabilities; had stated, for example, that this group was best suited to corn and cotton, that to grass, another to fruit and vegetables; if they had stated that this group may be cropped in its present condition, that group needs terracing or other remedial measures, and another group should not be cropped at all - the reports would have been much more useful.

We note with approval that soil surveyors, stimulated by a demand for this and other types of information, necessary to land-use planning, are beginning to obtain it. We have seen the manuscript of the report on the survey of Pontotoc County, Oklahoma. This contains much more information of a kind valuable in land-use planning than has hitherto been supplied. We feel that this represents a move in the right direction, which should be further developed.

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In most sections of the United States, but in the South and Southwest particularly where soil erosion and one-crop farming systems have taken their toll

of soil resources, systems of land classification looking toward land-use adjustments should be developed. It is along this line that we have developed our system of land classification. It delimits areas on which remedial action is necessary, and indicates the nature of it.

By our system the land is classified into three main agricultural groups, A, B and C and one non-agricultural group, N. A and B cover arable and C non-arable, land. Each one of the principal groups is subdivided into 3 to 5 sub-groups based on such factors as position, texture and color. The land type is the final unit of classification, and this may be considered a body of land having such uniformity of characteristics as make it adapted to a given use or uses, or as delimit a condition or set of conditions.

The A group includes those land types which are recommended for crops in their present condition, which require little or no remedial action. It is the better group of soils for crops. Slopes are less than 3%. The soils are relatively productive. The B group consists of soils on which erosion control, and usually other remedial action is necessary; slopes 3 to 5 or 7 per cent. The C group consists of soils so badly eroded or too erodible to be used for crops. This group is recommended for pasture and/or woodland. This we finally have the land classified into 10 to 15 types, a not unwieldy number.

Such a classification as this can best be made with a good soil survey as a basis. The more the information available as to slope, stoniness, depth of soil, erosion, erodibility, crop adaptability, etc., the more easily can the land-type map be prepared. But some field work will be necessary in practically every case. In case no soil survey is available the land-type survey can be made directly in the field, the land types being mapped in much the same way as are soil types, but considerably more time is required for the field work in this case. For a fuller discussion of the procedure and details of this system of land classification see a paper by the present writer entitled, "The Natural

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